

A latter-day rationalist's lament



S. E. LURIA

Oubliez pour un moment le point que nous occupons dans l'espace et dans la durée, et étendons notre vue sur les siècles à venir, les régions les plus éloignées et les peuples à naître. Songeons au bien de notre espèce; si nous ne sommes pas assez généreux, pardonnons au moins à la nature d'avoir été plus sage que nous.

DIDEROT, *Le Neveu de Rameau*

In planning this essay in honor of André Lwoff, I discarded one after the other a series of topics that came to my mind: lysogeny, microbiology and man, my early and more recent days at the Institut Pasteur. At the moment, thoughts of André Lwoff are associated in my mind with more urgent concerns about the future of our culture and civilization.

Perhaps I can explain what I mean by recalling how Lwoff punctuated a classical review on "Lysogeny" (1), as well as other writings, with quotations from Aeschylus, Bacon, Poincaré, Nietzsche, and Gide, among others—quotations sometimes seriously apt, sometimes whimsical, all revealing a concern for intellectual clarity and an urge to relate scientific ideas to the whole of a cultural tradition. André Lwoff—scientist, painter, master of language, leader of one of the great schools of biology—is a prototype scientist-humanist, in whom the "two cultures," supposedly divergent and losing touch of each other, remain

happily married. In a true sense, such a person is the living embodiment of the cultural tradition of modern man, in which the rationalist-scientific enterprise of the last three centuries has been grafted on the vigorous stem of humanistic culture.

But today that tradition is in crisis. Its value for man and its future viability are being challenged, especially within those societies that have felt for the longest time the impact of its consequences. The challenges are of different but not unrelated kinds. On the one hand, the scientific-rationalist culture is challenged by those who see it as a sterile, mechanical, value-less pursuit of knowledge, blind to the consequences that this knowledge may have in store for humanity or, even worse, as a hand-maiden to technocracy (2). On the other hand, there is the challenge of those who see the rationalist-scientific culture as a transient phenomenon, the product of special local conditions in Western countries in the last few centuries, and one that has nearly reached saturation, so that its presumed goals—knowledge and progress—are coming to an asymptotic end (3).

Both challenges reflect the tragedy of our times. An enormous amount of scientific progress has generated stupendous technologies; but the rationalist hopes of the past two centuries, that a free-wheeling technology would satisfy the biological needs of man, remove the causes of conflict among men, and open up a royal way to a golden era of humanity, have proved illusory. The brutalities of two world wars at a time when educated men considered war unthinkable; the rise of aggressive nationalisms just when the way seemed open to international brotherhood; the persistence and increase of poverty even in the most affluent societies; and the current twin threats of nuclear destruction and uncontrolled overpopulation—all these events have shattered confidence in the values of the rationalist-scientific revolution.

The whole enterprise is being rejected as responsible for, and irresponsible to, the problems of human life. Increasingly men, especially young men, search eagerly for alternative sources of values: either turning to traditional religion, or sinking into solipsistic despair, or seeking mystical solutions that substitute immediate experience, individual or collective, spontaneous or drug-enhanced, for logical analysis. The ultimate aberration—the rejection of sanity itself—is manifested in claims of the positive value of psychotic experiences (4)!

What has gone wrong, and what is to be done? I believe the root of the problem to be, not in the scientific direction of the cultural enterprise, but in its uneven development and in the conditions of the society in which its products are being applied. Science produces knowledge, which becomes the source of technology. Technology in turn is being used for social and political goals. But the society that uses technology is not a rational society. Its goals are not chosen rationally, in a way that would bring about the maximum satisfaction of human needs and desires. Hence most uses of scientific technology fail to benefit mankind. At best, they satisfy some short-range demand; at worst, they serve the profit or power motives of ruling groups.

What is wrong is not a surfeit of science and technology, but their uses in a society that has not achieved means to choose its own goals rationally. The need is not for alternatives to science, but for a science of man and of its society, a science of human technology, and a rational approach to human values.

Man is a unique animal. He has a biological nature and also, uniquely, a cultural nature. The biological nature makes for the transience of each individual; the cultural nature, based on language, makes for the persistence of individual contributions. I dare to assert that these two natures of man contribute to humanity as a whole its only rationally conceivable "goals": biological survival and cultural development. The first is Darwinian, the second Lamarckian. Together, these two impersonal goals confer meaning to the existentially purposeless life of the individual human beings. Ultimately, these collective goals are the only rationally acceptable sources of meaningful, evolving values by which humanity can rule itself at any one point in its development.

But the two goals do not necessarily function in a cooperative way. In fact, they are often in conflict. Thus at some times the cultural developments may pose a threat to man's biological survival; we may be at such a point now with regard to overpopulation and nuclear energy. At other times, man's biological needs such as those that generate mass human migrations may play havoc with some cultures, as took place in the dark ages of post-Roman Europe.

At such times, remedies are needed to restore a balance and enhance man's survival and cultural development. But what are those remedies? Some frightening perspectives have been conceived by literary

imagination: for example, the biologically manipulated, culturally immobilized *Brave New World* of Aldous Huxley. Hardly less frightening is the society conceived by Hermann Hesse in *Magister Ludi*, in which culture becomes an esthetic cult delegated to a small, uninfluential elite.

More significant as a remedy, if only a palliative one, is the quest, forcefully advocated by many in our society, that man's cultural activities be validated by the criterion of immediate relevance to social problems. Scientist and humanist are taken to task for their insulation from the problems of society, for their presumed pursuit of sterile intellectual exercises, for widening the gap between the amount of knowledge available and the social environment in which that knowledge is being applied. There is some validity in this demand for relevance. A wide gap exists between the cultural enterprises that modern societies encourage and finance and the social technologies needed to repair and prevent the ills that exist within these societies.

Yet, when the quest for relevance in scientific and cultural activities takes an anti-intellectual, anti-rationalist turn, its aim is wide of the true target. It is not culture that has failed society, but society that is failing culture by applying culture's output to goals that do not make for man's success, either biological or cultural.

If the two classes of human goals, biological survival and cultural development, are to flourish together, not less but more science may be needed. We need a science of human nature that can provide an understanding of the needs, drives, and interactions of men with each other and with their environment (5). Today, because of misguided priorities, we may know more about man in interplanetary space than about men on earth in their own rural or urban dwellings, about their reactions to close relatives or to alien strangers, to people of similar or different color or language.

Also, we need a social science of technology that studies the impact of new technologies on society and can foresee the probable results and their social consequences (6).

More than anything, we need a political science that takes into account the biological and cultural nature of man and devises political structures that enhance the dual goal of humanity rather than the narrow interests of a class or a nation, or the fostering of some fixed ideology. Social science has lagged behind natural science, not only because of

the intrinsic difficulties of the subject, but because of the prejudices and taboos it has encountered, of the resulting relative lack of encouragement and support, and of having too often let itself be made the faithful servant of the status quo. Some of the sharpest insights into the possible methodology of a scientific social science—by Marx and Freud, for example—have not yet flourished in the same fashion as the great insights of natural science because of being or becoming embedded in rigid or metaphysical frameworks.

How can society develop the kind of social science that can discover, formulate, and forcefully proclaim sets of values that reflect and respect the dual goals of humanity at any one stage of its development? How can we insure that the products of such a social science, when available, will be implemented in a rational, dynamic, evolutionary way? And, most important of all, is there time left? The biological crisis of humanity is drawing near; the cultural crisis may already be at hand, both results of the uneven development of different branches of human culture.

I for one am unwilling to despair, if only because the basis for hope is deeply embedded in my personal allegiance—as a biologist, to man's biological survival; as an intellectual, to man's cultural progress; as a rationalist, to the rationalistic direction of that progress in the future. I believe that the outdated frameworks of beliefs and the stultifying power relations of present-day societies can be made to give way to a more adaptive set of social relations and political institutions. I believe that if the passion, the methodology, and especially the commitment to factual truth and mutual trust characteristic of the natural sciences can be applied to developing a humanistic social science and implementing its findings in the social arena, mankind will find a path in which its dual goals will be pursuable together in harmoniously balanced relation. In that path, the quest and reverence for knowledge, not only of the physical world, but of man and his unique passage in the universe, may flourish jointly with the recognition and respect for his biological nature.

NOTES

1. André Lwoff, Lysogeny, *Bact. Rev.* 17, 269-337 (1953).
2. See discussion by T. Roszak, *The Making of a Counter Culture*, Doubleday, New York, 1969.
3. See, for example: G. S. Stent, *The Coming of the Golden Age*, Natural History Press, Garden City, New York, 1969.
4. See, for example: *The Value of Psychotic Experience*, a summer series of workshops and symposia presented by Esalen Institute, Big Sur, California. See also R. D. Laing, *The Politics of Experience*, Pantheon, New York, 1967.
5. For a penetrating discussion by a biologist, see H. Gaffron, Resistance to Knowledge, *Ann. Rev. Plant Physiol.*, 20: 1-40 (1969).
6. See P. Goodman, Can technology be humane? *The N.Y. Rev. Books*, 13 (No. 9), 27-34 (1969).